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ESSAY

ON THE

CONSTRUCTION OF SCHOOL-HOUSES,

TO WHICH

WAS AWARDED THE PRIZE

OFFERED BY THE

AMERICAN INSTITUTE OF INSTRUCTION,


AUGUST, 1831.

done
BY WILLIAM A. ALCOTT.

WITH AN APPENDIX.

BOSTON:
HILLIARD, GRAY, LITTLE AND WILKINS,
AND
RICHARDSON, LORD AND HOLBROOK.

1832.

 Gentlemen who may receive this pamphlet, are respectfully requested to let teachers, school-committees, and others of their acquaintance, that take an interest in the subject of education, have an opportunity to become acquainted with its contents.

REPORT.

THE Committee, appointed by the Directors of the American Institute of Instruction, to examine the several Essays which have been offered "*On the Construction of School-Houses*," and to award the Society's premium to the author of the best one, respectfully ask leave to

REPORT:

That they have given the subject committed to them, that deliberate consideration which its practical importance to the great cause of common education seemed to them to require. They have carefully examined five Essays, with their accompanying plans; some of them being of considerable length, and all of them containing valuable suggestions upon the several topics discussed in them. And while the Committee would not be understood to predicate absolute perfection of any of them, they have unanimously agreed that the one offered by WILLIAM A. ALCOTT, of *Hartford, Ct.*, is decidedly the best. And they do hereby award to him the premium of TWENTY DOLLARS, appropriated by the proper authorities of the Institute for that purpose.

The Committee ask leave further to report, that pending their deliberations, they received a scientific and valuable communication from Mr. WOODBRIDGE, of *Hartford, Ct.*, upon the "*Size of School-Rooms*,"—a topic intimately connected

with, or rather forming a part of, the more general subject discussed in the Prize Essay. In view of its merit, both as a distinct performance, and as an amplification of one topic of the subject proposed for the prize, the Committee herewith submit the document ; and recommend that it be appended to the Prize Essay, and published with that, agreeably to the Resolve with which this Report concludes.

All which is respectfully submitted by your Committee.

JAMES G. CARTER.

E. BAILEY.

J. KINGSBURY.

1. *Resolved*, That the thanks of the Institute be presented to Mr. Woodbridge for his timely and valuable communication upon the "Size of School-Rooms."

2. *Resolved*, That the Prize Essay "On the best Construction of School Houses" be read before the Institute, at such time during its present session as convenience may suggest ; and that, together with the document appended, it be printed under the direction of the Censors ; and that each member of the Institute receive, on application, one copy gratis.

CONSTRUCTION

OF

SCHOOL-HOUSES.

THAT the general arrangement and appearance of even inanimate things around us, have an extensive influence in forming our character, will hardly be questioned. Every object, and every individual we see, either renders us more cheerful and happy, or the contrary. The condition of those objects, therefore, which surround a collection of children, whether the number of those children be five, fifty, or one hundred, must of necessity have a very considerable influence in forming their dispositions, and giving a determination to their future character.

Nor is their present comfort a matter of indifference, any more than that of the same number of adults. Where is the parent to be found, who would select as a location for his dwelling, the junction of four roads, or a portion of the highway, or a sand-bank, marsh, or swamp? Or, who would choose, for this purpose, a bleak hill, a wilderness, or some lonely and secluded spot, rarely visited by man or beast? With a few misanthropic exceptions, mankind love to dwell in airy places, affording a pleasant prospect. They are fond of having shade and fruit trees, shrubs, flowers, fountains, and greensward around their dwellings. The number of those who prefer the disagreeable sight of barren hills, and fields, and sand-banks, or the nauseous and unwholesome exhalations of stagnant

water, the barn yard and the sty, to the fragrance and rich scenery alluded to, must certainly be small: yet what is more common than to find school-houses exposed to many of these evils, and sometimes to all of them combined? The strongest evidence is every where afforded, that in constructing and furnishing them, we too often consult our own convenience, rather than the comfort, welfare, or accommodation of our children. Location, size, structure, internal arrangement and furniture—all combine to force upon our minds the same conclusion. The many dark, crowded, ill-looking, and *sometimes* disorderly and filthy huts, to be found in the country, called, or rather *mis*-called school-houses, seem to have been provided as a kind of necessary evil, rather than as places of voluntary and cheerful resort for the offspring of the proprietors. In conformity with these views, we are told by a recent writer on this subject, that of forty school-houses with which he is acquainted in a single county, "*three fourths*," as he judges, are "located without regard to the comfort, health, and happiness of the children. They stand in gloomy, unhealthy places, without a feature of beauty in the scenery around them."

Few, indeed, of the numerous school-houses in this country are well lighted. Fewer still are painted, even on the outside. Play-grounds, for common schools, are scarcely known. Hence the pupils are obliged to play in the road, exposed to every attendant danger, both physical and moral.

Nor are the internal arrangements more favorable. There is much suffering from the alternation of heat and cold, and from smoke. The feet of children have even sometimes been frozen. Too many pupils are confined to a single desk or bench, where they are constantly jostling or otherwise disturbing each other. The construction of the desks and benches is often bad. Little or no provision is made for free ventilation. Hundreds of rooms are so small that the pupils have not, upon the average, more than five or six square feet of surface each; and here they are obliged to sit, breathing impure

air, on benches often not more than six or eight inches wide, and without backs. Many of these benches are so high that the children's feet cannot reach within several inches of the floor. Thus suspended, between the heavens and the earth, they are compelled to remain motionless for an hour or an hour and a half together. These things ought not so to be. Their health and comfort are believed to be far more important than their progress in science; and in providing for their accommodation during the hours of study, these are the first points to be secured. *Health*, as well as *time*, is *money*; and it is a most mistaken economy which confines a child to those arrangements, and to that atmospheric impurity, which render him unfit for vigorous effort, and thus slowly, though surely, impair his constitution: for we impose by these means a far greater tax on the parent, than would be necessary in erecting the most spacious buildings, and furnishing ample and liberal accommodations.

Some of the above-mentioned evils arise from the fact that the centre of population of the district has usually determined the location of school-houses. But a central situation should be regarded as a matter of only secondary importance. The house should stand on an elevated spot of firm soil, at a moderate distance from any other buildings, or any public road. A few shade trees should be near, and if convenient, fruit trees. A piece of ground, consisting of from a quarter to half an acre, should be devoted to the purposes of the school, and enclosed by a fence or wall in such a manner as to prevent, at the pleasure of the instructor, any communication from without. The main building should be near the side of the enclosure adjoining the usual point of entrance. The wood should be kept in a separate building, as the danger from fire is thereby diminished, and the house can be kept more cleanly and airy. In the rear of these should be a spacious play-ground, part of which should be paved, and covered with a kind of roof, or awning, where recreations may be conducted in unfavorable

weather. Nearly of equal importance are a flower garden, a well or spring of good water, and facilities for washing. The rest of the enclosure may be devoted to the purposes of agriculture and horticulture, whenever these exercises shall come to be regarded as indispensable to every district school.

When the soil is not naturally firm, an artificial soil should be substituted; and the main building should always be elevated, at least two or three feet above the surface immediately around it.

The height of the house, if thus elevated, need not exceed a story and a half. This will give room for placing the windows higher than usual in the wall, a point which will be insisted on hereafter. The ceiling should be arched, the walls plastered, and whitewashed, or perhaps painted.

A building intended for about sixty pupils, should be 40 feet in length, by 30 in breadth. This is probably a greater than a medium number of pupils, but for a larger or smaller number, the same plan may be observed, increasing or diminishing the size of the building accordingly, though not in exact proportion to the increase or diminution of numbers, because the doors, entries, stove, &c., will occupy nearly as much space in a small house, as in a large one. For one hundred pupils, 48 by 40 feet is a convenient size; for fifty, 36 by 30; for thirty-six, 34 by 24. But a considerable number of the schools in the northern and middle States, contain fifty to sixty scholars, at least in the winter; and consequently require a building as large as is here contemplated. (*See the drawing, No. 1.*)

In the plan here proposed, separate entries (*a a*) for the sexes occupy the south end of the building, each of which is 15 feet in length, by 5 in breadth. Within these entries, a suitable number of wooden pegs are placed, at a proper height, and suitable distance from each other, for hats, coats, and cloaks; and a few benches or stools for the use of the smaller pupils, while adjusting their shoes, clothes, &c. The dimensions of the school-room itself are 35 by 30 feet, including

the instructor's platform. This platform (*b*) consists merely of an elevation of the floor across the north end of the room, to the height of 18 inches, and 4 feet in width; on which are a moveable desk and seat (*c*) for the instructor.

The seats and desks for the pupils, (*d*.) occupy the central part of the room, and are arranged in rows from north to south, in such a manner that the pupils face the instructor. There are eight rows, having seven desks in each row, with corresponding spaces or aisles, (*e*) $1\frac{1}{2}$ feet wide, between the rows. The desks are 2 feet long, $1\frac{3}{4}$ feet wide, and the seats about a foot square. The latter, except those at the southern end of each row, are attached to the desks immediately behind them, in such a manner, that the front of each desk forms a back to the seat of the pupil who occupies the next.

The desks and seats are so constructed as to leave no shelves or cavities under them. Each seat is, in effect, a square box closed on all sides. It is well known to instructors that when the hollow under the seat is left open as a place of deposit for a hat, &c., or shelves furnished for books *under the desk*, playthings of various kinds, together with the shells of nuts, and the cores and stones of fruits, are accumulated here by indolent or vicious pupils, to such an extent as often to occasion much trouble. It is to prevent the possibility of evils of this kind, in part at least, that a different construction is recommended. With the same view, as well as to favor cleanliness, and purity of the air, all hats, spare clothes, provisions, fruits, &c., should be left in the entries. *Flowers* may, however, be permitted to remain in the room during the day time, as they purify, rather than injure the air.

The proper and most convenient place for the pupils' books and other apparatus, is a box or case in the front part of each desk. The relative position of this box will be illustrated by *drawing*, No. 2. Its width is 8 inches, and its depth about a foot, so as to receive the largest slates, atlases, and writing-books, when placed edgewise; for which purpose there

is a narrow division of the box, formed by a thin partition. The largest division is for books only. The lid, (*c*) when closed, forms a part of the upper surface of the desk. That part of the desk which forms the back to the next pupil's seat, is elevated about 3 inches above the level of the desk, both for his accommodation, and to prevent the lid of the book-case from falling over too far in that direction.

The height of the desks and seats is proportioned to the height of the pupils who occupy them. They also bear a certain proportion to each other. Those which are nearest to the instructor's platform are the lowest, and those which are most remote, the highest; both because the pupils who most need the instructor's aid will be nearest to him, and removed farthest from the noise which is sometimes unavoidable about the stove and entries; and because the view of the school from the platform will be more complete.

The particular arrangement of each seat and desk, is such as almost to compel the person occupying it to sit in an erect position. The edge of the desk will be directly over the edge of the seat. In writing, the arms will hang naturally by the side, while the flexure at the elbow will be such, that the lower portion of the arm, with the hand, will form a right angle with the upper portion, and rest lightly upon the desk. The desks will thus be much lower than is usual, but all parts of the body, as well as every limb, will be at the same time free and unconstrained. This is a point of vast importance. The most common position at the school desk is extremely unfavorable to the healthful action of the lungs, stomach, liver, &c., as well as liable to produce distortion of the spine, and consequent disease. Some have recommended desks gently sloping. My chief objection to this, is, that it is not common to meet with them in this form in the daily business of life. Not one in six of the pupils will write on a sloping desk after leaving school. Besides, the view of the instructor from his platform will be slightly obstructed, the general arrangement

less simple, and rather more expensive. On the proposed plan, the construction of the whole is simple, and by no means expensive. The boards forming the desk and book case, are supported by two broad pieces of plank placed upright at the ends, and by the seat attached to it in front.

Although the present plan admits of but fifty-six desks, yet there is a seat (*n*) attached to the fore part of each of the eight desks which are nearest the instructor's platform, which, instead of being, like the rest, about a foot square, are two feet in length. On these, eight small pupils, and in an urgent case sixteen, may be seated *without desks*. The whole number of pupils thus furnished with *seats* in the main room, would be seventy-two. These front seats will also answer another important purpose. Classes may sit here to recite to the instructor, or to witness experiments; and if smaller pupils happen to be occupying the seats, they can be transferred, for the time, to the stair (*m*) of the platform.

Thus the whole school will generally face the instructor, who can oversee them from his platform, and pass, with the utmost ease and facility, from one to another, to direct or aid them, inspect their books, book-cases, slates, writings, &c. If lessons are given, or exercises performed on the black boards, either over the instructor's platform or on the wall, they will be in full view of all the scholars, without moving from their seats. When a pupil wishes to leave his seat, it can be done without disturbing half a dozen others, or compelling them to rise every time he wishes to pass, as is often the case when the desks are connected. There will be more difficulty, it is true, in crossing from one space or aisle to another; but this will rarely be necessary. It will be better to pass around the north or south ends of the rows. When it is necessary, however, to cross from east to west, only *one* pupil is compelled to rise at a time.

The spaces between the outside rows of desks and the walls are 2 feet in width. If black boards or lessons are placed up-

on the walls, it is desirable that these outer spaces should be 4 feet wide, instead of two. It is not, however, indispensable; and my present purpose is to give the smallest space which will answer for the proposed number of scholars.

The instructor's platform may be occupied for various purposes. On it, the pupils may take their station to declaim, classes or individuals recite, and visitors be seated. Here, too, is an extensive black board, over which are *cases* for depositing apparatus, and for the school library. If the school has a museum, or collection of natural and artificial curiosities, it is convenient to have this also near the instructor; and if experiments are made in chemistry, or any of the other sciences, the platform will be very convenient for that purpose. The instructor will also have the means of keeping his eye, through the medium of the two windows at this end of the room, on the play-ground; and through the most northern windows on the west side, on the garden, and adjacent portion of the enclosure.

The stove stands near the entrances. Between the nearest row of desks and seats, and these entrances, there is a space (*oo*) unoccupied, except by the stove, (*k*) and other furniture about to be described. This space, 8 feet wide, extends across the whole width of the house. Between it and the first row of desks, are two movable black boards, or semi-partitions, (*ff*) each 12 feet in length, and 5 feet in height, consisting simply of boards painted black on both sides, and nailed to upright posts, supported in an erect position by being framed to cross pieces, or sills, three feet in length. Their uses will be mentioned presently.

This vacant space is naturally divided into two portions by the stove. Seats (*g*) are furnished to both; taking care, however, to leave sufficient room to pass the semi-partitions to the principal school-room. If the monitorial system is adopted in any of its various modifications, this will be a proper place for recitation. Indeed, let the system of instruction be what it may,

these spaces will furnish every advantage of separate recitation rooms, with but half the expense. The south side of the semi-partitions will furnish them with a black board. At other times, the instructor might use these places as an appropriate retirement for reproof or discipline. But I have principally in view another object still. The time, it is hoped, is not far distant when every school of any considerable size will be divided into two departments. When this period shall arrive, the female assistant teacher may occupy these apartments, with ten, twenty, or even thirty pupils, until the public mind shall be so thoroughly awakened to the importance of such an arrangement, as to erect, for the purpose, still more ample and commodious buildings.

The movable black boards also answer several other important purposes. The side towards the instructor will often be convenient as a black board for the main school. Being five feet high, they may also be placed in such a manner as to screen the pupils near it from that intense heat, which occasionally emanates from a stove, as well as from currents of air from the doors, when the pupils are coming and retiring.

The majority of existing school-houses are very imperfectly lighted, as has already been observed. But on the present plan, the windows (*w*) are so arranged as always to afford sufficient light; and if in excess, curtains should be interposed.

It is believed that the windows of a school-house ought to be elevated about 5 feet above the floor. The following are some of the reasons. 1st. It will in this way be more difficult to look out at them, and much trouble will thus be saved to the instructor. It will also preclude the necessity of nailing boards across the lower part of windows to prevent the pupils from looking abroad, as is sometimes done. 2. They are less liable to injury. 3. There will be less exposure of the pupils to currents of air. 4. This structure is favorable to ventila-

tion, especially if the upper part of the windows be made (as they ought to be) to be *lowered* at pleasure. 5. The light will not strike so directly upon the eyes of the pupils, as when the windows are lower in the wall. 6. Another reason of still greater importance is, that by having a broad space left below the windows, room is afforded for prints, paintings, engravings, maps, and charts; or for any other similar means of instruction.

The windows ought by all means to be furnished with curtains and blinds; and if the former are judiciously selected, they may be made to afford the material, or furnish suggestions, for many important and interesting lessons. It is desirable that paper curtains should be prepared expressly for school-rooms, under the direction of some individual who understands the wants and capacities of children.

Holes or windows should be made in the roof of every school-house, that the impure air may sometimes be suffered to escape in that direction. The proper place for these windows is in the roof, about two-thirds of the way from the south to the north end of the building. One method of raising the shutters and opening these windows is, by means of ropes fastened to their tops, and the ~~rope~~ carried over pulleys and suspended in the room. The windows may fall by their own weight; or if not, by means like those devised for raising them. There must, of course, be holes or spaces in the arched ceiling of the room, to correspond with these windows.

The floors of school-houses should be made of oak, or some very hard wood; not only because it resounds less, but because it is more durable. If the desks and seats were made of the same material, they would probably be less exposed to injury, especially from vicious pupils. For black boards a softer kind of wood is preferable. Linden, or bass wood, has been recommended.

The doors (*h*) at the north end of the room communicate with the garden and play-ground, and also serve for the ad-

mission of fresh air, either to cool the room, when necessary, or to aid in ventilating it.

Notwithstanding every arrangement hitherto proposed, it is obvious that the subject of *ventilation* may not receive that attention which its importance demands. Spacious apartments, like that which I have proposed, are indispensable, as well as a due regard to the number and position of the doors and windows. Still, if the latter are kept constantly closed, and the pupils are not permitted to stir from their seats oftener than once in an hour, or an hour and a half, their health may be seriously impaired. Respiration alone contaminates the air at a rate which is truly surprising to those who have not been accustomed to examine the subject. When to this source of impurity we add the effluvia which are constantly escaping from the surface of all living bodies, together with other causes which are at the same time operating, we can scarcely avoid wondering why the *immediate* injury sustained by the human constitution in confined rooms is not greater than we find it. Nothing but the fear of extending my remarks to an improper length prevents me from devoting several pages to this important subject. I cannot but indulge the hope, however, that it will soon be investigated, and the results presented to the public. At present I will only add, that after every precaution in regard to ventilation, which human wisdom can devise, every pupil should be required, and, if necessary, *compelled* to go out into the open air, at least once in an hour. Probably once in half an hour is not too often.

The best method of warming school-rooms is by means of air heated in some adjacent apartment, and conveyed into the room by pipes or funnels. When this course is not adopted, I prefer for the purpose an open stove, with either dry wood or charcoal. Much loss is sustained by burning *green* wood. The fore part of the stove should be towards the entrances, and pipe enough should be used to keep up as equable a temperature in the room as possible. During the cold season, fires

should be prepared about two hours before the time of opening school in the morning. The room may then be ventilated often, as the heated walls, floors, and furniture will quickly restore the temperature of the air. A thermometer is useful, and the heat may be graduated by it. The pupils should not be suffered to leave the school at evening in a profuse perspiration, as sometimes happens, but the temperature should be reduced gradually during the last hour of the afternoon, until they can go out with safety.

Without adverting to the subject of *personal* cleanliness, which indeed does not come within the scope of the present essay, I cannot refrain from urging the importance of paying the strictest regard to the purity of the walls, ceiling, floors, and furniture, by frequent washing, scouring, brushing, &c. Mats and shoe-scrapers at every door are indispensable; yet nothing is more generally neglected.

It is surprising, that while a large proportion of the dwelling houses in this country are painted, and the expense is deemed necessary in point of economy, we scarcely ever see a painted school-house. Would it not render the covering of these, as well as that of other buildings, more durable? But placing economy out of the question, what adult person is so destitute of taste, as not to prefer painted buildings even on account of the appearance? And are not children better pleased with handsome houses, fences, walls, &c., than with those of a contrary description?

If the walls in the interior of the school-room are painted, it is desirable to have it done with a reference to the improvement of the pupils. Numerous interesting and instructive scenes might thus be presented, both historical and descriptive. The floor should be level, rather than *sloping* (as some have recommended) towards the instructor. Every school will need some kind of time-piece, which should be placed over the instructor's platform, in full view of the pupils.

I have already said that every school ought to have a spacious play-ground. The means of performing gymnastic exercises should be afforded, but to what extent I am uncertain. But I cannot help anticipating a period when every common school will have the means of attending to agricultural and mechanical pursuits more or less every day, and be furnished with all the necessary *implements*, made of a proper size for the smaller, as well as the larger pupils. It is to be feared, however, that though strict economy, no less than the health of the pupils, is believed to require it, the day when they will come into general use, is still distant.

It may be objected, that the school-room here proposed, is *larger*, and consequently *more expensive than is necessary for common schools in country towns*. But it affords scarcely *nineteen square feet of surface*, that is, a space about *four feet square* to an individual: while it has been estimated that a space four feet square, and of the usual height of rooms, is the least which can be occupied for one hour by a pupil with safety. The air is supposed to be rendered entirely unfit for healthy respiration at the rate of a gallon a minute, or about a hogshead an hour. But as the carbonic acid, from its greater gravity, settles towards the floor, a hogshead of this air will reach about to the height of a child's head, who is sitting confined to the space above mentioned, or so nearly that he cannot avoid inhaling it.

Were not the detail too horrible, I might relate the dreadful story of destruction at Calcutta. At present I will only say, that one hundred and forty-six persons were confined to a room 18 feet square, for ten hours; and though there was one opening for the admission of air and light, only twenty-three persons were living at the end of that time. They were destroyed by the impure and poisonous air. Can children, in groups of fifty or one hundred, spend even *one hour* in rooms of similar dimensions, and escape wholly uninjured?

I visited a school not long since where there was about 30 feet of space, that is, an average of much *more* than 4 feet square, to an individual. I inquired if the room was not unnecessarily large. "By no means," said the teacher. "I should be unable to spare a foot of it." An able instructor once informed me that he visited a school-room in the city of New York, where more than twice even the last mentioned space was afforded to each pupil. Yet he voluntarily remarked that there was no loss, but great gain, from having so much room. The ease and freedom with which the varied duties of the school can be performed where ample space is allowed, and the consequent increase of progress in science, will more than compensate for the additional expense, were health out of the question.*

In regard to the *expense* of erecting separate desks, I am most decidedly of opinion that the amount of time saved by it, will be more than a sufficient compensation. Any thing which saves *time*, saves *money*; and I think time enough would be saved in three years by single desks, to amount, at the lowest possible estimate, to \$100, including food, clothing, and tuition—for these are properly included in the estimate.

* From a statement of Dr. Bache, quoted by the Journal of Health, Vol. II. No. 6, it appears that each of the cells for solitary confinement, in the new Penitentiary at Philadelphia, contains more than 1300 cubic feet of space; which is equal to a room 14 feet long, by 12 wide, and nearly 8 high. I am acquainted with several school-rooms smaller than this, and without ventilation; while in the *cells* alluded to, the most thorough attention is paid to ventilation, cleanliness, and temperature. The prisoner is also allowed an amount of exercise in the open air, when the weather is favorable, almost equal to that which is allowed to the pupils in many of our schools. In one instance, the amount of space to each *school-room* prisoner, is less than 36 cubic feet, while the adult convict in the penitentiary is allowed more than 1300! Much complaint has been made of the danger of life and health from confinement in these cells; but how seldom do we hear the voice of remonstrance against contracted school-rooms!

The saving need be but fifteen minutes a day to each of fifty pupils. Let him who has had experience in the business of instruction say whether more than even this amount of time is not lost, by the present arrangement of a majority of existing school-rooms. My purpose has been to keep economy in view, in every suggestion. Separate desks for each pupil I regard as absolutely indispensable. As to the increase of size which they give to the school-room, it should be remarked that the purposes of health cannot possibly be answered without an amount of space at least *as great* as I have proposed, whether we use single desks or not.

The *height of the windows* may be objected to by some. But the reasons for this innovation upon the prevailing custom have been fully given; and though it may be regarded as a violation of good taste, the numerous advantages which this arrangement will secure, vastly outweigh every other consideration.

Should it be said, that *the room thus constructed, cannot be used with so much convenience for meetings or for other purposes*,—my reply is, that it was not *designed* for other purposes, but for a *school-room*. If it can be used for meetings and other purposes without injury, so much the better; but nothing should be permitted to interfere with its primary object. Even recreations should not be permitted here. If storms or inclement weather absolutely forbid going into the playground, or if there be no roof thrown over any part of it, the division intended primarily for recitation, near the stove and entries, may be occupied for this purpose, but not the main room.

Finally, it may be said that *classes cannot be formed with so much ease and despatch, on the present, as on the old plan*. Did my limits permit, I think I could easily show that this objection is entirely without weight. Not only can classes be formed in their seats, almost instantly, but by moving only a single step, they find themselves in the spaces or aisles, ready

to march in a row to any place designated,—to the instructor's platform, the black boards, or the play-ground. In fact, the very construction of the desks, places the pupils in right lines, and almost compels them to maintain that position. Each pupil is situated about three feet from his neighbors, at the right and left, and separated by the whole width of a desk from those who sit next to him in the other direction. Of course, it will be rather difficult for one to communicate freely with another ; at least without the knowledge of the instructor. At present, it is not uncommon to see half a dozen heads huddled together. They *may* be engaged in study ; but they may, too, be doing mischief. How much better is it to prevent evil, by such an arrangement that a vigilant instructor can see the whole school at a single view, and, with a proper degree of care, keep the pupils in the way of duty, than to expose them to unnecessary temptation, and then punish them for offending.

If a room for the special purposes of a museum, and as a place of deposit for apparatus, should be desired, (and it is hoped it may be) the house must be somewhat larger ; and this room should be in the rear of the teacher's platform, on the same elevation. For the present, I have supposed shelves, cases, &c., might answer the purpose.

Again—no provision has been made for the pupils standing at higher desks a part of the time, because it is believed they may *sit* without injury for about *half an hour at a time*, and then, instead of standing, they ought to walk into the garden, or exercise in the play-ground a few moments, either with or without attendants or monitors. Sitting too long, at all events, is extremely pernicious ; particularly where the desks are too high. This is one principal reason why a large part of our youth have their spine distorted, and the right shoulder higher than the other. For the same reason, and for want of exercise, the muscles which are connected with the spinal column,

are but partially developed, and the whole body, especially the nervous system, is enfeebled.

The relative position of each pupil should occasionally be changed from right to left, otherwise the body may acquire a change of shape by constantly turning or twisting so as to accommodate itself to the light, always coming from a particular window, or in the same general direction.

If a portion of the play-ground is furnished with a roof, the pupils may sometimes be detached by classes, or otherwise, either with or without monitors, to study a short time in the open air, especially in the pleasant season. This is usually as agreeable to them, as it is favorable to health. A few plain seats should be placed there. A flower garden, trees, and shrubs, would furnish many important lessons of instruction. Indeed, I cannot help regarding all these things as *indispensable*, and as consistent with the strictest economy of space, material, and furniture, as a judicious arrangement of the school-room itself.

Sensible objects, and every species of visible apparatus, including, of course, maps, charts, and a globe, are also regarded as indispensably necessary in illustrating the sciences. They not only save books, time, and money, as has been abundantly proved by infant schools, but ideas are in this way more firmly fixed, and longer retained. In the use of books, each child must have his own; but in the use of sensible objects and apparatus, one thing, in the hands of the instructor, will answer the purposes of a large school, and frequently outlast half a dozen books.

Such are the views which my own personal experience and observation have led me to adopt in regard to this important subject. I am aware that on some points they are opposed to prevailing opinions, but while I cannot suppose that they are entirely free from error, I cannot but hope that these and other means proposed for the improvement of our schools will not be rejected without bringing them to the test of a fair experiment.

PLATE I.

FIGURE 1.

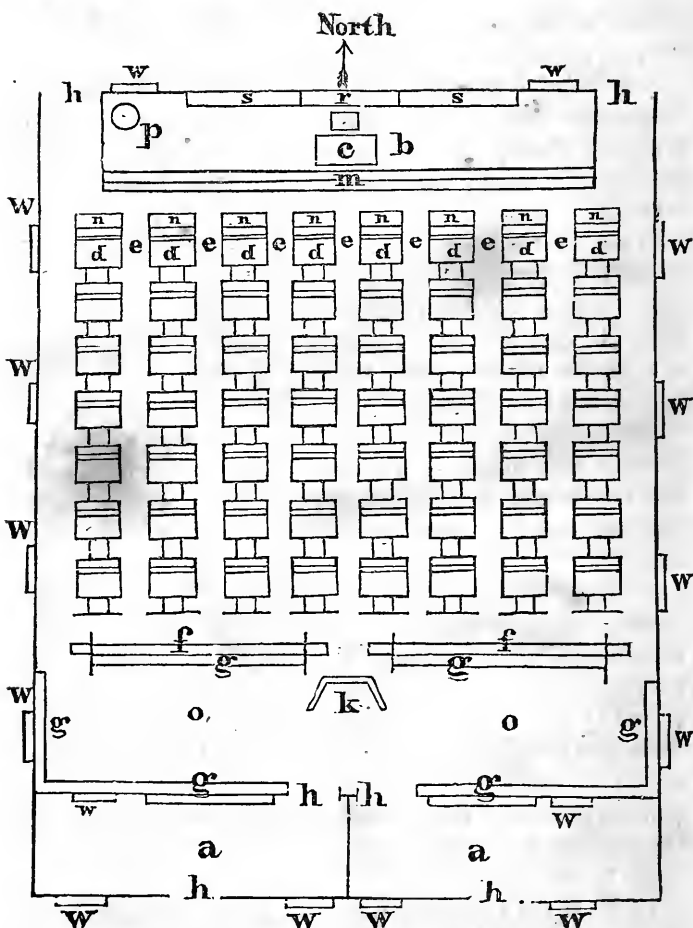
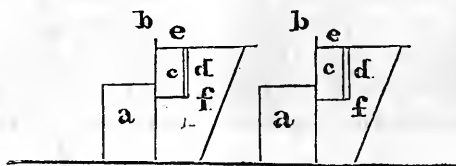


FIGURE 2.



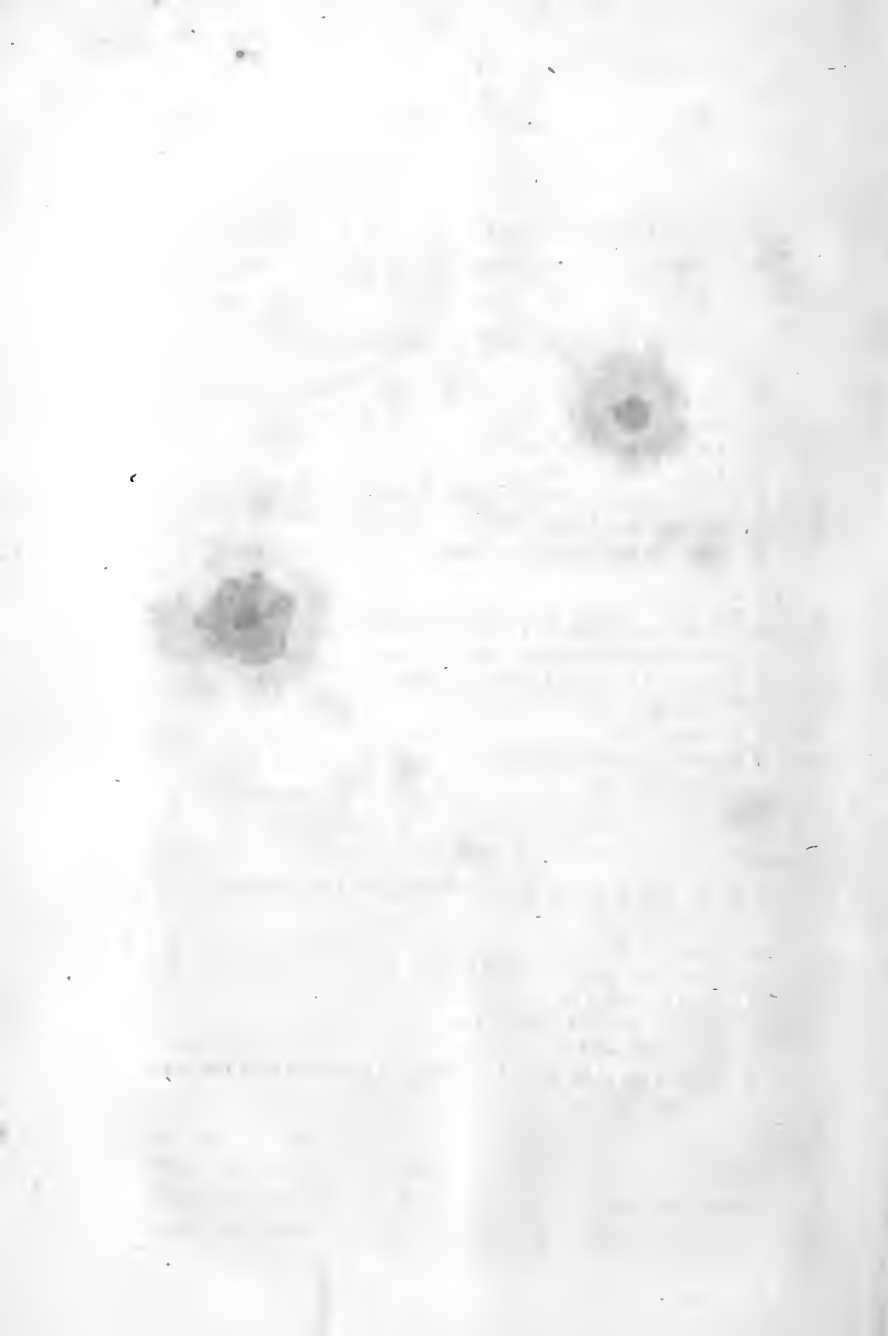
EXPLANATION OF PLATE I.

FIG. 1. THE PLAN OF THE SCHOOL-HOUSE.

- aa* The two entries.
- b* The Instructor's platform.
- c* Instructor's desk and seat.
- d* Desks, 2 feet by 14 inches.
- e* Spaces between the rows of desks, $1\frac{1}{2}$ feet wide.
- ff* Movable black boards.
- g* Seats, for those who are reciting, &c.
- h* Doors.
- k* Stove.
- m* Step for ascending the platform.
- n* Seats for small pupils, and for recitation.
- o* Space 30 feet by 8, for recitation, &c.
- p* Globe.
- r* Library.
- s* Place of deposit for Museum, &c.
- w* Windows.

FIG. 2. SIDE VIEW OF THE DESKS AND SEATS.

- a* Seat.
- b* Back of the seat, or front of the desk.
- c* Case for books, &c.
- d* Narrow division for slates, &c.
- e* Lid to the book case.
- f* Form of the plank which is the principal support of each end of the desk.



A P P E N D I X.

COMMUNICATION

ON THE

SIZE AND VENTILATION OF SCHOOL-ROOMS.

*To the Committee of the American Institute, on the Subject of
School-Houses.*

GENTLEMEN,

THE *air* we breathe is so common a blessing, that its value is not estimated ; and the importance of preserving its purity in schools, by constructing rooms of sufficient size, and providing ample means of ventilation, cannot be appreciated, without considering the influence which it has upon life, health, and mental vigor. While I shall not attempt to offer an entire plan for a school-room, I have hoped to promote the general object you have in view, by collecting the principal facts in relation to the subject of *air*, which ought to be considered in its construction and arrangements.

The heart of a healthy individual, of mature age, beats about sixty-six times a minute, or four thousand times an hour ; that of a child, much faster. The whole mass of the blood is supposed to pass through it, fourteen times an hour, or once in four minutes. After it returns through the veins to the *heart*, and before it is again sent out into the body, it is made to pass through the *lungs*, where it comes in con-

tact with the air we breathe, and undergoes several important changes.

1. Its *temperature* is raised several degrees. 2. Its *color* is changed, from a dark red to a light crimson—a change which the venous blood will undergo when drawn from the body and placed in the air; and it is found to contain an increased proportion of oxygen, or vital air. The whole mass of blood, thus altered every four minutes, conveys heat and nourishment and life to the extremities of the body; and if the process be interrupted, or imperfectly performed, for four minutes only, every organ and member of the body is of course more or less affected.

These changes *cannot be produced* without the presence of *oxygen*, or vital air; and they are produced in a healthy manner, only, by *such a mixture*, as we find in a pure atmosphere, consisting of 20 per cent. of oxygen, and 80 of nitrogen. If an air *less pure*, or containing other gases, breathed, these changes are not thoroughly produced; the lungs perform their task with difficulty; and the body and the limbs do not receive their *due supplies of nourishment*, and *vital energy*. They are even *injured* by the *half corrupted* state of the blood; and that weariness and languor are produced, which is always the consequence of spending some time in a bad air. Thus the person, who attends a crowded assembly, where the ventilation is not complete, will find lassitude, and often, chills extending through every limb, and languor invading every faculty of the mind; a feverish, unpleasant taste in the mouth, a restlessness through the following night, and often a degree of exhaustion in the morning, like that which succeeds a night spent in travelling. In order, therefore, to *preserve the body in health*, even after it has gained maturity, and especially to supply it when it is *growing*, and invigorate the constitution when it is forming, it is of the *highest importance* that the air should be preserved in that state of purity which the Creator designed. It is true, that dis-

ease and death do not *immediately* follow every deviation from this standard; but it is also certain that *some degree of injury must be produced*; and such a reason for neglect is as insufficient, as it would be to excuse ourselves for giving our friends or our children, food which was partially spoiled, or drink which was partially filthy, because it would not immediately destroy their lives or health. How preposterous and inexcusable would every one regard it, to give them their food constantly mingled with poison, or their drink with pernicious and loathsome insects. Yet it is not less inexcusable to furnish them with *half corrupted air*, or that which contains poisonous gases! The *food* is given but three times a day; while the *air* is administered *every moment*. The child is *at liberty* to *receive* or *reject* the food; but he is forced to breathe the air in which we place him. To put our children or friends in a room, which does not contain that supply of vital air which is necessary for their health, is not only to *offer* them a poison, but to *compel them to take it*. Who can tell how much evil has been ignorantly done in this manner—how much health and enjoyment have been destroyed—how many constitutions have been enfeebled! The multitude of pale faces and meagre forms to be found on our school benches, and in our colleges, and our manufactories, will answer the question in part.

The following is one fearful example of the effects of negligence on this point. In the Dublin Hospital, during the four years preceding 1785, two thousand nine hundred and forty-four children, out of seven thousand six hundred and fifty, died within a fortnight after their birth; or thirty-eight out of every hundred. The physician, Dr. Clarke, suspected the cause, and introduced air, by means of pipes six inches in diameter. The consequence was, that during the three years following, only one hundred and sixty-five died out of four thousand two hundred and forty-three, or less than four in a hundred. The fair conclusion, therefore, was, that two thou-

sand six hundred and sixty-five children, of the previous years, died for want of pure air !! * We shudder at the history of the

* The following statements will show that diseases of the most dangerous character, are often produced by the want of ventilation, where no *immediate* injury is perceived. They are extracted from a work recently published in London, by Dr. George Hawthorn, on the subject of ventilation.

"The contagion by which Typhus Fever is produced," says Dr. Lind, "is generated in three ways; the first of which is the confinement of the *healthy animal exhalations* in a crowded and ill-ventilated place." Mr. Howel, and others, who escaped from the black hole at Calcutta, were seized with the Typhus Fever. Dr. Chisholm, in his observations on the remote causes of fever, says: The second proceeds from *human effluvia*, arising from *healthy persons*, but, from the peculiarity of circumstances in which they are placed, in a state of morbid concentration, are capable of generating a principle similar to that produced by infectious and pestilential effluvia." Dr. Fordyce, and others, state, that many brute animals are subject to Typhus, when crowded together in ill-ventilated places. It has been observed to break out among hogs and sheep.

It is very common to find mild febrile attacks among the poor, apparently originating from cold, or other causes, becoming contagious in their course, in consequence of the confined and dirty situations in which the patients live. "I have known a nervous fever," Dr. Ferrier observes, "which was putrid also in several instances, preserved in a small town for almost two years, among the poor alone." In 1779, a fever of the nervous kind raged in Carlisle (England), which did not seem to be introduced from any neighboring place. Dr. Heysham, with great industry, traced its origin to one of the gates, which was tenanted by five or six poor families."

"I conceive it unnecessary to adduce more facts, corroborative of the important truth, that *accumulated and concentrated animal effluvia* are sufficient to produce *diseases of a most malignant and pestilential nature*; or to give more references, to show that such has been the opinion of the *most experienced and learned writers* on the subject. It is a fact, established by the experience of ages, that the most destructive diseases with which our cities and towns have been visited, have generally had their origin either among the poor, whose houses, besides being crowded, are the abodes of all kinds of filth and wretchedness, and destitute of every means of ventilation; or in barracks, poor houses,

"black hole of Calcutta;" but here was a sacrifice of life, eighteen times as great, in an institution of charity!

A man in health, is supposed to breathe, on the average, twenty times in a minute, and to take in forty cubic inches of air at one inspiration; or eight hundred cubic inches, equal to $3\frac{1}{5}$ gallons per minute. Of this, one fifth only, or one hundred and sixty cubic inches is vital air, or *oxygen*; and thirty-two cubic inches, or one-fifth of the whole vital air contained, is consumed in the minute, in order to produce the changes in the blood which are necessary to health. In five minutes, therefore, the vital air of the whole $3\frac{1}{5}$ gallons would be consumed; or, in *one minute*, the vital air of two-thirds of a gallon. In one hour, the whole vital air of nine thousand six hundred cubic inches, or forty-one gallons, would be destroyed, and respiration could no longer be performed.

But in addition to this, an amount equal, or nearly equal, to that of the oxygen consumed, is produced of *carbonic acid*, formerly called fixed air (which often destroys life in wells); and this *poisonous gas* is breathed in place of vital air. At the end of half the time mentioned, therefore, we shall have an air composed of only half the proper quantity of *oxygen*, and corrupted by an equal quantity of a poisonous gas. In this view of the subject, we can hardly doubt that *double the supply* we have stated, *i. e.* twenty thousand cubic inches, or

hospitals, prisons, ships, *boarding-schools*; or in places which are filled with animal effluvia, from a number of persons being confined or collected together. The necessity, therefore, of changing the air in all such situations, is too obvious to require comment.

A dreadful example of the effects of air thus corrupted, upon individuals who breathe it only a short time, occurred at what were termed the Black Assizes, held at the Old Bailey, in London, 1750. The effluvia arising from a large number of prisoners, who were brought into the Court, or confined temporarily in rooms adjoining it, was so destructive, that more than forty persons present were taken sick and died, including four out of six of the judges, and several of the counsel and jury.

eighty-two gallons per hour, would leave a person to faint and die. Facts confirm this estimate.

Particular experiments were made on this subject by Dr. Henderson and Mr. Kite. Dr. Henderson breathed six hundred cubic inches for four minutes, or nine thousand cubic inches, equal to thirty-six gallons, an hour; and was *compelled to stop*, after suffering much oppression and distress for breath.

Mr. Kite breathed five hundred and ninety-one inches, for a minute; equal to seventeen thousand seven hundred and thirty inches, or one hundred and forty-one gallons per hour, and *was greatly oppressed for breath*. He breathed the same quantity $1\frac{1}{2}$ minutes, and the oppression became intolerable; and in two minutes use of $\frac{1}{3}$ gallons of air, (equal to seventy gallons per hour) he became giddy, his face swelled, and he fell back in his chair.

Halley says, that it requires at least one gallon per minute to *sustain life*, or sixty gallons an hour; but this was the air compressed by being in a diving-bell, at the bottom of the sea; and the quantity must be estimated higher at the surface of the earth. *Lavoisier* says, that, according to his experiments, a man would *die* in 5 cubic feet, or eight thousand six hundred and forty inches, in an hour.

It would appear, then, that when a person is *confined* to three hundred cubic inches, $1\frac{1}{4}$ gallons of air a minute, or to eighteen thousand cubic inches, or seventy-two gallons an hour, he will be in danger of *oppressed breathing, and fainting*. He will not receive the supplies necessary to maintain his vital energies without *much more air*. The question, "How little can be afforded without immediate danger to life?" is one which *should never be asked* by a kind, or even faithful educator, concerning that which God bestows in unlimited abundance, and which can only be excluded by inexcusable parsimony, or cruel neglect towards those under our care. We are not merely bound to *keep children alive*, but to give them all the air which is necessary to *invigorate their constitutions, to produce comfort, and cheerfulness, and activity of*

body and mind. We must therefore resort to the instructions of experience as to this point.

Unfortunately, we have few particular observations in regard to school-rooms.

The French writers on *hospitals*, deem it *indispensable* that each patient, (even in the private sick room of a school) should have $6\frac{1}{2}$ *cubic toises of air*,—equal to fourteen hundred cubic feet; and *such* is the plan of the best European hospitals. Sir Gilbert Blane says, six hundred cubic feet are necessary in England (with a climate much colder, and an air generally purer than ours) for each patient; and that with a less quantity “it is *impossible to maintain the requisite purity of the air.*” If we take but half the quantity required by the French, (allowing the rest on account of disease) it will probably be a better rule for our climate; and when we recollect the superior means of ventilation in the immense rooms of a hospital (many of which are seventy feet long and fourteen high) this will *by no means be too much* for a small, close school-room. We shall then have a space of *seven hundred cubic feet* for each pupil;—or, supposing the room to be eight feet high, each child should have *eighty-seven square feet*, or a space of 8 feet by 11. It appears from the facts collected by Mr. Adams,* that the smallest allowance, in several distinguished schools which he visited, was $7\frac{1}{4}$ feet; and the largest, sixteen to a scholar; or, if the room were ten feet high, (as we believe those referred to are,) *seventy-two to one hundred and sixty cubic feet*. Lancaster, whose rooms in England were 15 or 20 feet high, in many cases allowed nine square feet to a pupil, or from one hundred and thirty to one hundred and eighty cubic feet to each; and this where the most rigid economy was demanded. Supposing the ceiling to be ten feet high,—at only the allowance of one hundred and fifty cubic feet to

* See Adams' Lecture, in the collection of Lectures delivered before the American Institute in 1830.

an individual, the *smallest* dimensions of a room for thirty pupils should be 22 feet by 20 feet;—of one for fifty pupils, 30 by 25—for seventy pupils, 35 by 30—and for one hundred—44 by 34 feet. A *liberal* allowance would require at least *one third more*; and *double the space* is *highly desirable*. But if we reduce the space occupied by each child to *less* than that here allowed, we *hazard his health and constitution*, as well as his immediate comfort, in order to avoid an expense comparatively of no moment. And *with this amount of space*, nothing but *frequent and careful ventilation*, and great attention to cleanliness, in the persons of the pupils as well as in the room, will prevent their suffering from the constant exhalations, (often loaded with disease) which arise from the skin, the stomach, and the lungs, and which cannot be weighed and measured, except by the baneful effects they sometimes produce, when they are suffered to accumulate. These *exhalations*, let it be remembered, are *thrown off* by the organs, *because they are injurious to the person himself*. But without due ventilation they must be *respired by others*; and not only that, they are mingled with the saliva in the mouth, and *pass with it into the stomach*. Who can wonder at the loss of appetite, and diseases of the lungs and stomach, which are so commonly connected with ill-ventilated school-rooms! Such places are literally nurseries of disease, and open sepulchres for health and happiness.

In regard to the mode of ventilating school-rooms, it should be remembered, that the gases and exhalations in a crowded assembly are of two kinds—those which ascend on account of their heat or lightness to the upper part of the room, and are perceived by those who sit in elevated galleries, or whose heads are in any way raised towards the ceiling—and the *carbonic acid* or fixed air, which is heavier than the atmosphere, and therefore descends, and occupies that part of the room next the floor, in the same manner as it is found to settle in

wells and cellars. To favor the escape of the lighter exhalations, it is indispensable to have openings over the tops of the windows, or in the upper part of the room; and scarcely any degree of ventilation below will supply their place.*—In the winter season, an opening into the upper part of the chimney, when the draft is good, will answer the purpose. Where this is wanting, and especially in rooms where lights are used, a very excellent means of ventilation is found in an artificial chimney, formed by a pipe issuing from the upper part of the room, with a large funnel at the opening, in which a lamp is kept burning. By means of the strong draft here produced, Sir Humphrey Davy, the celebrated English chemist, cleared his laboratory in a very short time, after having filled it with noxious gases.

But it is not less necessary to guard against the effects of the *carbonic acid* which settles in the lower part of the room. In caverns and wells, it often rises only to a certain height; so that above this level an individual may breathe and a light may burn, perfectly well; while a light would be extinguished and the respiration obstructed, or stopped, on descending below it. Thus, in the celebrated *Grotto del Cane*, in Italy, in which this gas issues from the ground, and although it is invisible, can be found by its effects to flow along the ground, a dog will die, while a man whose mouth is elevated above the level of the gas, suffers no inconvenience. The teacher, therefore, especially if he is elevated on a platform, will not always

* I presume many have noticed a fact illustrating this remark, which I have more than once observed in travelling; that when a room which has been closed during the day in warm weather, is aired at night by windows opening only from below, the air will appear for a short time quite fresh; but on shutting the windows, will become, in half an hour, as close as ever. In this case, the warm exhalations and lighter gases remained undisturbed at the top of the room; and as soon as the lower air, which has been cooled, becomes heated, and ascends, they are again brought down, and made perceptible.

be sure that the air of that part of the room in which the smaller children are breathing is good, merely because he perceives no want of purity in that which surrounds him ; and, like the man in the Grotto, may be surprised to find that one who breathes below him suffers from the badness of the air. On this account it is of great importance that no part of the room should be below the level of the doors ; and that regular provision should be made for opening the doors frequently and for a sufficient time, to allow this deleterious gas to flow off. These circumstances seem to me very decisive arguments against making a school-room descend, as I have sometimes seen, towards the centre, producing a kind of "black hole" for the smaller children ; and they show the importance of employing rooms above the level of the ground, for schools, as well as other assemblies of people. The immediate evil effects are imperceptible perhaps ; but seeds of disease and debility may be planted, which no subsequent care can eradicate.

The best mode of securing regular ventilation as well as uniform heat in a school-room, during the season when the windows must be closed, undoubtedly is, to introduce the external air from the side, and not from the cellar, of the building, through a stove or furnace, so that it may enter the room warm, diffuse the heat equally throughout, and prevent the current of cold air which presses in at every crevice. In this way also, the doors and windows may be opened at any time, without cooling the room too much, as the air usually presses outward.*

* Several excellent plans have been discovered for this purpose, of which I trust the Committee will furnish some account. I have found, that a common stove might be made to answer the same purpose, in some degree, in the following way :—Let a close case of sheet-iron be made of such dimensions as to rise from the floor to the top of the stove, or a little above it, on three sides ; and so large that there will be a space of two inches on all sides between the stove and the case. The stove should be raised on legs, or bricks, a few inches from the

The facts and principles presented in this paper, have been collected with care, from the best and most recent authorities in Chemistry and Physiology within my reach ; * in the hope that they might serve to impress more deeply on the minds of parents, and of the guardians and visitors of our schools, the importance of providing the indispensable means of bodily health and intellectual vigor, *for teachers and their pupils*. It can scarcely admit of a doubt, that the premature decay, or sudden destruction of many a faithful teacher, and the debility of constitution of many a pupil, is brought on by the insidious but poisonous influence of the corrupt air in which they spend their days. The economy, which hazards such results, by providing small school-rooms, can only be compared to that infatuated avarice, *which destroys life, in striving to obtain or to hoard the means of existence*. In no single mode, probably, could the American Institute be more useful, than in establishing and circulating correct views on this important subject ; and I cannot but hope that their efforts will be the means of extensive good, on this and many other subjects of vital importance to the interests of education, and therefore, to the prosperity of our country.

I am, Gentlemen,

Respectfully yours,

WILLIAM C. WOODBRIDGE.

floor, and the opening beneath closed in front with brick—the other three sides being closed by the case. Introduce the air from without, by a wooden trough, and let it rise under the bottom of the stove, and it will pass out between the stove and its case in a pleasant state of warmth. The trough should be furnished with a slide, to regulate the amount of air, according to the warmth of the stove and of the room ; and the case should be so constructed that it may be removed, in order to clean the space around the stove when necessary.

* Among these are Hare's, Gorham's, Henry's, and Silliman's Chemistry ; Richerand's, Magendie's, and Bostock's Physiology ; Londe's Hygiene ; The Paris Dictionary of Medical Sciences, and Rees' Cyclopaedia.

ON THE
CONSTRUCTION
OF
SCHOOL-ROOMS.

[The Censors have been favored with a communication "*On the Construction of School-Rooms*," from the Rev. WILLIAM WOODBRIDGE, which was not offered for the prize of the Institute. On this subject, Mr. Woodbridge speaks with the voice of experience; and the following extracts from his communication, contain an exposition of *principles* which are well worthy of attention. The Censors would not be understood, however, to approve of the *plan* proposed in this communication, in all its details.]

THE subject proposed by the Institute, requires attention to the best modes of constructing, warming, lighting, and airing school-rooms. The construction of a room necessarily depends on the objects to which it is destined, and the ends to be obtained; and these must first be considered. No man *ought* to build, without counting the cost: *viz.*—*For what purpose* he builds as well as *at what expense*; whether of *money*, or *TIME, HEALTH, OR LIFE*. What millions have been wasted for want of the first! What losses follow miscalculations in the last.

Before stating any particular plan, I would make some general, but essential remarks.

1. The intent of all theoretical and practical education is, to form *the sound mind in the sound body*. This is the central point to which all means are to be directed. How are the powers of genius to be developed in a *sickly* child? What are the *public uses* of theology, in a dyspeptic divine? or the energies of wisdom in a consumptive habit?—in a walking corpse? *Health* then, and *wisdom*, are the great objects of education: “*United they flourish—divided they die.*” For this the church—the nation—is in mourning.

2. *Fresh air*, and *cleanliness* in every form, are absolutely and imperiously essential in our common schools.

3. Clear light, easy and convenient seats and benches, that favor easy attitudes of body, appear to be important, if not essential points in the structure of school-rooms. *Uneasy bodies* render the mind uneasy and restless. Clear images of truth cannot be reflected from turbid and agitated water.

4. To *prevent* is easier than to *rectify* disorders in a school. In order to do this, no scholar should be out of his teacher's eye five minutes in a day.

Such vigilance is essential to order; as it convinces the scholar that nothing can be done, even slyly, without detection, nor can study be neglected without notice: it is a first principle in the teacher's art, the first in school tactics. Therefore every school-room ought to be so constructed as to render this great and incessant duty convenient.

5. The “*non-naturals*,” to use the Physician's term, have great effect upon the *mental temper*, as well as the physical system. A village fiddler takes great care of his violin, keeps it carefully from wet and dampness and too much heat, which affect the tone of its strings, and render them too tense or too lax; surely then the nervous and muscular system requires attention. *Mental habits* are formed under the hand of the teacher. Passions are to be regulated into proper discipline, for self-command, and social order, and regular sub-

jection. *Nothing* that belongs to the means of their regulation is trifling.

“Just as the *twig is bent*, the tree’s inclined.”

The distorted sapling is low, unshapely, and crooked, while the well trained tree, which is near it, grows tall and upright.

LIGHT.

Windows for a school-room ought to be high, for several reasons. 1. When low, the light is interrupted by every intervening object, and throws the pages of the reading and writing book into the shade. 2. Low windows when opened bring a current of air directly upon the pupils, and expose those before it. 3. Low windows incline the scholar to look out too long and too often. The *upper sash* of every public room ought to be hung with a weight, that it may be let down in order to allow the hot and lighter exhalations, which rise to the ceiling, to escape. 4. The *saving of glass* would be a serious advantage in point of convenience and economy; for low windows are often broken, and often *go a long time unmended*, from the neglect of committees. 5. The same quantity of glass in a sky-light, would produce double the quantity of light. The sky-light might also be so hung as to air the room, often and easily.* 6. The end or side windows, ought to be high, and their light thrown upon the benches *lengthwise*; otherwise it will admit an inconvenient shade. Every purpose then both of air and light will be best secured by *high windows*, combined with sky-lights where it is practicable, throwing the light lengthwise over the benches, supposing these to be sloping.

* The glass might be of the kind called bull’s eye, that would stand the weather, and be more secure from accidents.

HEAT.

Heat in a school-room ought to be equally diffused through every part. This can rarely be done without a stove. No seats or benches ought to touch the floor, therefore, to prevent the free circulation of warm-air to the feet. Such seats also would interrupt the sweeping, which ought to be done *daily* and *well*. The fire ought to be kindled early in the morning; otherwise children become uneasy and fretful, and nothing goes on well. When the warm air of a stove-heat meets the scholar's cheek, as he enters school, he is at once pleased and easy. On the other hand too great a degree of heat renders the scholars uneasy, listless and fretful, and the teacher more languid.

There ought to be a *thermometer* in *every school-room*, and the heat regulated to fifty-five or sixty degrees. If the preservation and health of the plants of a green-house deserve this care, should it not be used for a school of children? Our feelings often lead us to judge incorrectly of the temperature; and a teacher who is chilled or feverish, may render his scholars uncomfortably hot or cold, by regulating the room according to his own sensation.

When the room is well warmed in the morning, little, if any additional fuel will be necessary until noon. The breath and perspiration of a school, will keep up the temperature of the room until nearly noon, when the heat ought to abate, to prevent too great a change in passing into the cold air. The same regulation should be observed in the afternoon, and especially in the evening school. Stove-heat is far the most economical as well as most equally diffused through a room. It is of little importance in what part the stove stands; but it ought to have a *foot-board*, say six or eight inches high, if the stove be twelve or fifteen inches from the floor; and six inches wide, to set the feet on, in order to dry and warm them, and at a *safe distance* from the stove. To set with cold or wet feet, for several hours, produces immediate uneasiness,

and often danger. Above this, there ought to be a railing to prevent the children coming too near the sides and top of the stove. An open fire-place is sometimes *dangerous*, and even *fatal*, to children dressed in cotton. I have had two or three grown children whose clothes have taken fire, who were saved with difficulty, from dangerous if not fatal burning. No school-room ought to be left without some careful person, nor the fire renewed without the teacher's direction.

AIR.

The quantity of fresh air necessary to life, amounts to more than one gallon for each person for every minute, or seventy-two gallons an hour. So much then must be *ruined* by respiration; and so much *restored by ventilation* every hour. For want of this change of air, attendance upon meetings in a school-house or confined room, soon communicates languor and weariness to a painful degree. Attendance on a crowded assembly is followed by a sleepless or restless night; and a weary day follows from no other cause. How many asthmatic and fatal lung complaints arise from this single cause.

In looking back upon the languor of *fifty years* of labor as a teacher, reiterated with many a weary day, I attribute a great proportion of it to *mephitic air*; nor can I doubt that it has compelled *many worthy and promising teachers* to quit the employment. Neither can I doubt, that it has been *the great cause* of their subsequent sickly habits, and untimely decease. A few, by timely vigilance and care, have prolonged life, until age has given them a fair discharge. It is to be noted that they were *men of temperance*, either from inclination, virtue, or *necessity*—or men of very strong natural constitution. But how shall we prevent the deleterious effects of want of air, which we have described, upon the physical and mental system? From eight to sixteen square feet of area in a school-room have been estimated as necessary to secure a

convenient space for air and the exercise of the school. Why not be liberal of space and air? Parsimony here is "*penny-wise*," it is *extravagance of health and life*.

GENERAL CONSTRUCTION.

In the division of a school-room, I would place the teacher on an elevated platform, eighteen or twenty-four inches above the horizontal floor of the house, from which his eye can easiest view every part. This platform may serve as a stage for speaking and reading select pieces. In front of this platform, on each side of the teacher's desk, should be a board, or desk, ten or twelve inches wide, and conveniently high for a class to rest their books upon when they are receiving lessons, or occasionally to place an idler at, to study. Behind the teacher's platform, ought to be a book-closet, for maps, apparatus, or instruments for school use. A clock that would cost from five to eight dollars, would save its cost every week, besides fixing the habit of punctuality, of diligent study and orderly recitation. *Time is money*. Every minute lost in a school of forty-five scholars amounts to three-fourths of an hour. And all this may be saved several times every day, by the punctuality which a clock produces.

DESKS AND BENCHES.

Having tried all kinds of seats and boxes, I prefer those of the Andover and Exeter academies. These consist of seats and boxes twenty-four inches long, fifteen to eighteen wide; sloping one inch, with the lid $1\frac{1}{2}$ or 2 inches wider than the body of the desk; rising from the seat to the *elbow* of the student. One inch higher might be as well, or even better. The boxes, or desks, may be four or five inches deep next the seat, and six or seven on the other side. The parting of these desks should consist of $1\frac{1}{2}$ inch cross-pieces, upon which the lids will rest. The back of each seat will support the box part of the seat behind it. These upright backs will be mor-

ticed into two upright plank posts, and these posts into two wide joists, of four or five inches thick. The seats, say ten or twelve inches wide, may be twelve to fourteen or fifteen inches high ; more or less, to suit larger or smaller boys. Between the seat, and its desk, allow only room to stand up. *All seats* ought to have open backs, with narrow boards on the top to rest the back upon.

I have thus given my views in a brief and hasty manner, which circumstances render unavoidable, and request the Institute to dispose of them as they deem best.

(Signed)

WILLIAM WOODBRIDGE.*

* The Rev. Mr. Woodbridge is now seventy-five years of age. He was the first principal of the Phillips Exeter Academy. He commenced, in 1780, the only school known for *instructing females in the high branches of knowledge*, was instrumental in forming the earliest *association of teachers* of which we have any account in this country, in 1799—and was for fifty years actively engaged in teaching.

ELEMENTARY SCHOOL-ROOMS.

[The following judicious and pertinent hints are extracted from the "School Magazine" for April, 1829. It is hoped they may furnish some useful suggestions to teachers and others who are interested in ELEMENTARY SCHOOLS.]

IN the selection of school-rooms in cities, the following things seem highly important: *that the situation chosen be not confined, or dark, or damp, but embrace, as far as possible, the advantages of pure air and free circulation, along with the full privilege of light, and, if possible, a pleasant aspect.* Surrounding objects should, as far as possible, contribute to cheerfulness. This is a principle of great importance in all our arrangements for early education.

Where the advantage of a play-ground can be had, pains should be taken to keep it *dry*; as it cannot otherwise be wholesome. If a plat, ever so small, can be appropriated for a few shrubs and flowers, or even a single tree, it may be rendered a source of valuable instruction, as well as of immediate enjoyment.

A little care will prevent any injury being done to such a spot, or its productions. In the English infant schools, a bed of shrubs or flowers is sometimes added to the play-ground, for the very purpose of affording opportunity of cultivating early the natural sensibilities of infancy towards the works of creation, and of cherishing in the young mind habits of self-command, and a respect for the rights of property. Mr. Wilderspin, of the infant school in Spitalfields, recommends to all teachers of schools for little children, an arrangement of this sort; adding the testimony of his experience, that in several

years' teaching of children from indigent and perhaps ill-regulated families, he seldom or never found this expedient for juvenile improvement fail of producing the happiest effects.

To render school-rooms in cities less injurious to the health of young children than they sometimes prove, the following precautions have been found serviceable. *To dispense entirely with close stoves, and to make use of open stoves, or, when possible, of fire-places. To keep a thermométer in the school-room, for the purpose of regulating the temperature, whether in summer or winter. To have one or more of the windows made so as to let down at top.* The raising of windows sometimes throws a strong current on the heads and necks of children, when in a state of exposure from a previously overheated room. At some seasons of the year, this method of ventilating is dangerous, and in all it is injurious. In winter, and especially in the afternoon school hours, great relief from oppressive warmth or closeness, may be obtained by a single pane in the upper part of any of the windows being framed, so as to turn on small hinges, in the manner of a door. A few circular openings in the ceiling serve, in some measure, the same purpose. To secure both of these last mentioned contrivances, would probably be found most desirable.

With these brief hints we must leave the subject of school-rooms in relation to the circumstances of a city, and proceed to the consideration of arrangements applicable to elementary schools in the *country*. We may be permitted, in the first place, a few remarks on the choice of situations for the erection of school-houses. The selection of the spot on which the building stands, is too often made, in New England, at least, with mere reference to a location precisely central for the population of the district. A little attention to the wants and comforts of the children, if substituted for the views and wishes of grown people, would lead to a choice very different from what is sometimes made.

How often may the passing traveller observe, whether in the severity of winter, or the scorching heat of summer, the district school-house exposed in an angle of a bare field, to the violence of the wind, or the heat of the sun, when, at the distance of a hundred rods, might be found the shelter of an adjacent eminence, or the shade of an inviting grove. Were parents, in all cases when the site of the school-house is in agitation, to think of their children's happiness rather than their own predilections, the right decision would be always made; and the building would be erected where *education*, (and not *local feeling*;) required it to be.

The free scope for exercise commonly enjoyed by children in the country, renders any arrangement for health less a matter of importance there, than it is in cities. Still, an enlightened regard to the influence of circumstances in education, would lead to endeavor for securing every possible advantage, whether of a moral or a physical nature. It is by no means a rare circumstance, that the school-house is so situated as to have no adjoining space for recreation. Children are in consequence of this, sometimes left to find their amusement by playing in the road or in the street. In retired, shady, and pleasant situations, this disadvantage is comparatively slight. In rainy or dusty weather, however, and where young children are of necessity exposed to an oppressive sun, the evils are obvious.

To secure the *safety* of the younger children, without irksome restraint, is also a matter of importance in central situations, and near to roads on which there is much travelling. An appropriate play-ground, besides offering attractions for pursuing recreation in a safe and suitable spot, becomes a source of pleasure as a property and possession,—a thing not without its influence, even in childhood.

Many important considerations might be advanced, in addition to those now offered, on this point. But our present object is to submit hints which may lead to further thought, rather than to attempt a full view of the subject. Besides

there are several useful exercises of an intellectual nature, which may be united with bodily recreation; and for these purposes an adequate space, and sufficiently retired, by means of a fence or otherwise, is indispensable. This is more particularly the case in regard to those blended forms of amusement and instruction which have been introduced with so salutary an effect in infant schools, and which, with a little exertion, might be afforded to the younger classes of pupils in all primary schools.

Great benefit would often be conferred on health, and a valuable aid would be rendered to cheerfulness and mental activity, by extending the arrangements made for the education of childhood, so far as to furnish opportunities for exercise and recreation in unfavourable weather. *A large shed constructed of the plainest materials, would, in this view, be a very desirable addition to the accommodation, and the innocent and healthful pleasures of children.* In inclement weather, the labors of the teacher would sometimes be lightened by employing such a building as a receptacle for classes whose presence was not, at the moment, required in school; and whose uneasiness must otherwise be repressed by stern measures, or be left to occasion disturbance and interruption.

The subject of facilities for recreation we must now dismiss, with the single remark, that this is a point of great importance to the whole character of the young. Measures for promoting health are of value in proportion as they are used early, while the frame is susceptible, and every favorable change is effectually seconded by nature. A clear, strong, and ready mind, is inseparably connected with health and activity of body; and the purity of the young heart is best sustained in those instances in which the laws of the human constitution are attentively observed. The period of childhood offers, moreover, strong inducements for an affectionate care of its welfare, by the simplicity of the means it requires to be used for its advan-

tage. The infant does not ask for multiplied and costly resources ; it solicits, with nature's true eloquence, the privileges of protection and freedom, the cheering light, and the invigorating air, and the use of its limbs,—benefits in regard to which our prevailing views of education have been extremely narrow.

The next topic to which we would invite the attention of our readers is *the plan on which school-houses are usually erected*. Several changes might be advantageously made in this particular. Of those which seem most important one is *the enlarging of the plan of the building*, with a view to prolonging the season of teaching, and conducting the instruction of the elder and the younger classes, during a part of the year, under the same roof. A more liberal allowance of space, than has been customary in the planning of school-houses, would at least afford opportunity for arranging and classing the scholars to better advantage, and for introducing new facilities for instruction in several departments of education.

Few measures, perhaps, for the improvement of popular education would be more effectual, than an arrangement which might afford the requisite facilities for advancing, in an adequate manner, the progress of the elder classes in common schools. The great number of children now usually under the care of the teacher of a winter school, and their very unequal ages and capacity, hinder the improvement of all, by confining and embarrassing the efforts of the instructor. To divide the school, so as to arrange the younger scholars in an elementary department, under the care of a female assistant or of monitors, would be a great step towards a general reformation of instruction.

The additional expense of the salary of an instructress would probably amount, in some cases, to an entire obstacle to such an arrangement. But there are few school districts in which the requisite number of scholars sufficiently advanced in years and in education, could not be found, competent to render a limited but effective assistance, under the eye of a qualified

master. In like manner, where summer schools are very numerous, the instructress, if adequate to the charge, might, by the instruction which she should afford to a female class of the proper age and ability, remunerate them for the assistance they might render, in teaching the younger scholars.

To facilitate any plan of this sort, it would be desirable, in all cases, to have the school-room large enough to admit of the principal and the subordinate instruction going on at the same time, under the personal care and the superintending eye of the teacher.

An improvement of some value in the planning of school-rooms would be gained by having *two doors*, instead of one. In this way, *a separate entrance might be appropriated for scholars of each sex*, or for the younger, and the elder classes.

An improvement in the arrangement of the *windows* of school-rooms would be attained, *by placing them much higher from the floor than is now customary*, and having, if necessary on this account, a higher ceiling. Several advantages would be thus obtained. A large space of wall would be gained, which would admit of a range of maps, or useful tables, of letters, figures, weights, measures, &c., besides pictures illustrative of geography and natural history, such as are now afforded in small and cheap publications adapted to primary schools. But the greatest advantage attained in this way would be a range of 'black board,' round the greater part of the room, for various uses in spelling, ciphering, and any other department of instruction which requires or admits illustration addressed to the eye.

To elevate the windows of school-houses would be attended with two other advantageous consequences. *It would tend to keep the attention of the scholars from being attracted to occurrences and objects out of doors, and in summer would afford opportunity of ventilation, without the disadvantage of throwing the current of air directly on the heads of the children.*

P L A N
OF A
VILLAGE SCHOOL-HOUSE.

It is believed that the leading *principles*, advanced in the Prize Essay, will be generally approved by practical teachers; but there may be those who would prefer a school-room arranged on a *plan* somewhat different from that which the author proposes. The Censors have determined, therefore, as the whole subject was committed to them, to annex to the Essay another plan, which, they hope, will be acceptable to the members of the Institute.

Plate II is the ground-plan of a village school-house, for both sexes, containing eighty separate seats and desks. Additional seats for small children, who may not require *desks*, can be introduced at pleasure, and the teacher can arrange them in such situations as may be most convenient. For this purpose a sufficient number of light, moveable forms should be furnished.

The whole edifice, exclusive of the portico in front,—which may be omitted, if a cheap, rather than a tasteful building is required,—is 58 feet long, and 35 feet wide. The dimensions of the *school-room* allow 21 feet of floor to each of eighty scholars, the passages, teacher's platform, &c. being included. It is believed that this allowance is not too liberal,—is not more than is required for the comfort, health and improvement of

the scholars.* If we were called upon to name the most prominent defect in the schools of our country,—that which contributes most, directly and indirectly, to retard the progress of public education, and which most loudly calls for a prompt and thorough reform, it would be, the want of spacious and convenient school-houses.

The plan here proposed may be enlarged or diminished, for a greater or less number of scholars, according to the following scale :—For ten scholars, add 4 feet to the length ; for sixteen scholars, add 4 feet to the width ; for twenty-eight scholars, add 4 feet to both length and width. For a less number of scholars, the length or breadth, or both, may be diminished at the same rate.

In villages and populous neighborhoods, would not the interests of education be promoted, if the children were judiciously classed in a *series of schools*, according to their attainments? There might be one commodious building, containing separate rooms for two, three, or more schools, according to the number of children that could conveniently attend. A regular system of studies for the whole establishment should be determined, and its appropriate part of that system be assigned to each school. Stated examinations should be held ; and the scholars should be advanced from the lower to the higher departments, according to their progress in the several studies. To give a unity to the mode of government and teaching, the principal instructor should exercise a general superintendence over all the schools ; and the senior pupils might be called upon, from time to time, to assist the teachers in the lower departments. They would thus render useful

* It may not be amiss to state, that two of the Censors teach large private schools in Boston ; and, in their respective schools, they allow, for each of their scholars, about 22 square feet of floor, exclusive of entries, dressing-rooms, recitation-rooms, &c. One of the school-rooms is 16 and the other 18 feet high,—the former giving about 350, and the latter about 400, cubic feet of space, to each scholar.

aid to the school, review their own studies in the best manner, and prepare themselves to engage in the business of teaching, should they wish to do so. In cities and large towns, such a union of successive schools is perfectly practicable; and it cannot be doubted that such an arrangement would be attended with many advantages.

The *school-room*, represented in the plan annexed, is 48 feet long, and 35 feet wide, within the walls.

The floor of the room should be level, and not an inclined plane. Nothing is gained by the common mode of finishing school-rooms with inclined floors; and much is lost in symmetry, convenience and comfort. A faithful and active teacher will be about among his scholars, and not confine himself to a fixed seat, however favorably situated for overlooking them.

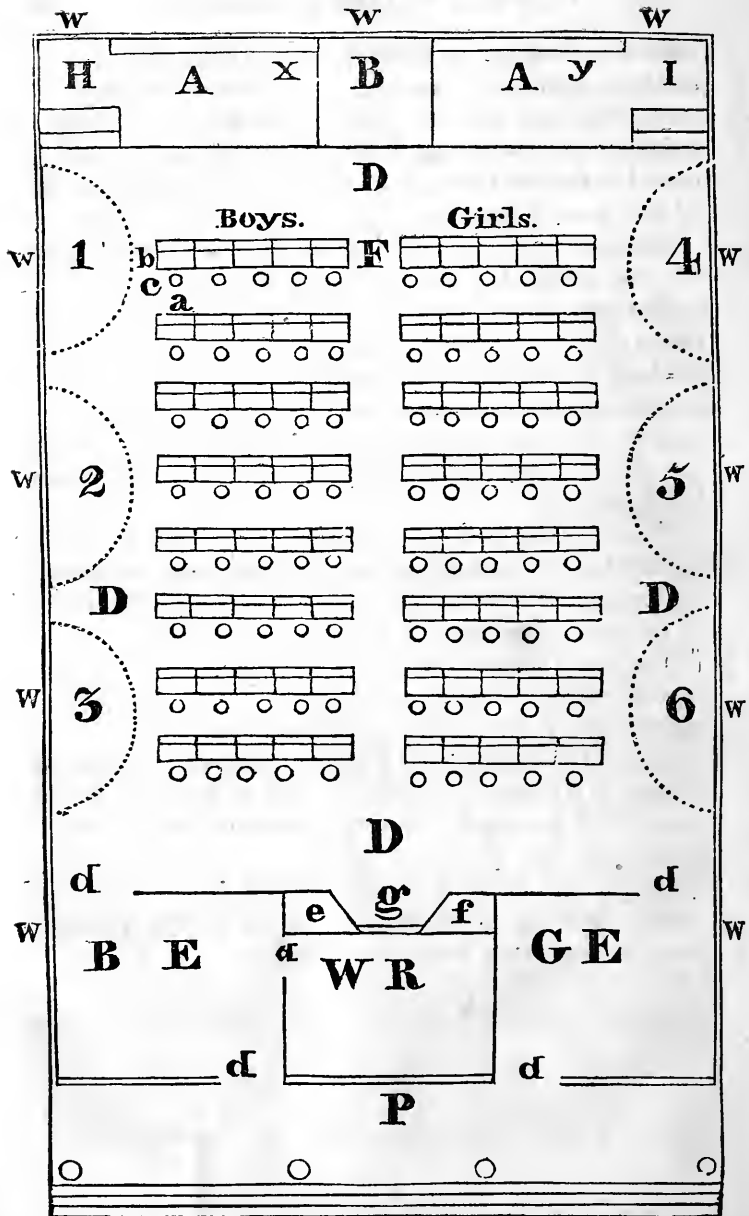
Whether there be a stove in the school-room or not, there ought to be an open fire-place, where children may warm and dry their feet. The fire-place should be furnished with a hot-air chamber, to facilitate the ventilation of the room.

The lids or tops of the scholars' desks are usually made to slope too much. They should be nearly, if not quite horizontal,—an inch to a foot being a sufficient slope.

Each scholar should have a separate seat, which should be confined to the floor. The seat should be about 13 inches square, and furnished with a back not more than 10 or 12 inches high.

The *front* rows of seats and desks, or those nearest the master's platform, being designed for the smaller children, should be lower than those near the entries.

PLATE II.



EXPLANATION OF PLATE II.

- P* Doric Portico in front of the School-house.
- d, d, d, d, d* Doors.
- B E* Boys' Entry, 12 by 10 feet.
- G E* Girls' Entry, 12 by 10 feet.
- W R* Wood-Room, 11 by 8 feet.
- g* Fire-place.
- e* Closet.
- f* Sink, to be concealed by a falling door balanced with weights.
- D, D, D, D* Passage around the room, 6 feet wide.
- 1, 2, 3, 4, 5, 6* Stations marked on the floor, to be used by classes when reciting to monitors.
- A B A* The Teacher's Platform, extending across the room, 6 feet wide and 9 inches high.
- B* A part of the Platform, to be removed in the winter, if necessary, to make room for a stove.
- x* Cabinet for apparatus, specimens, &c.
- y* Book-case.
- H* Master's Desk.
- I* Assistant or Monitor's Desk.
- F* Centre Passage; in the plan drawn 3 feet wide, but 4 feet would be better.
- b* Scholars' Desks, 18 inches wide and 2 feet long.
- c* Scholars' Seats.
- a* Passages between the seats and the next row of desks, 15 inches wide. A desk, seat, and passage, occupy 4 feet; viz. desk 18 inches, space between the desk and seat 2 inches, seat 13 inches, and passage 15 inches.
- w w, w, &c.* Windows, which should be placed high from the floor.

The scale on which Plate II. is drawn, is one tenth of an inch to a foot.

1. The first part of the document is a list of names and addresses, which are arranged in a columnar fashion. The names are written in a cursive script, and the addresses are written in a more formal, printed style. The list includes names such as "John Smith", "Mary Jones", and "Robert Brown", and addresses such as "123 Main Street", "456 Elm Street", and "789 Oak Street".

2. The second part of the document is a list of names and addresses, which are arranged in a columnar fashion. The names are written in a cursive script, and the addresses are written in a more formal, printed style. The list includes names such as "John Smith", "Mary Jones", and "Robert Brown", and addresses such as "123 Main Street", "456 Elm Street", and "789 Oak Street".

3. The third part of the document is a list of names and addresses, which are arranged in a columnar fashion. The names are written in a cursive script, and the addresses are written in a more formal, printed style. The list includes names such as "John Smith", "Mary Jones", and "Robert Brown", and addresses such as "123 Main Street", "456 Elm Street", and "789 Oak Street".

4. The fourth part of the document is a list of names and addresses, which are arranged in a columnar fashion. The names are written in a cursive script, and the addresses are written in a more formal, printed style. The list includes names such as "John Smith", "Mary Jones", and "Robert Brown", and addresses such as "123 Main Street", "456 Elm Street", and "789 Oak Street".

5. The fifth part of the document is a list of names and addresses, which are arranged in a columnar fashion. The names are written in a cursive script, and the addresses are written in a more formal, printed style. The list includes names such as "John Smith", "Mary Jones", and "Robert Brown", and addresses such as "123 Main Street", "456 Elm Street", and "789 Oak Street".

6. The sixth part of the document is a list of names and addresses, which are arranged in a columnar fashion. The names are written in a cursive script, and the addresses are written in a more formal, printed style. The list includes names such as "John Smith", "Mary Jones", and "Robert Brown", and addresses such as "123 Main Street", "456 Elm Street", and "789 Oak Street".

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ACT OF INCORPORATION.

COMMONWEALTH OF MASSACHUSETTS.

IN THE YEAR OF OUR LORD ONE THOUSAND EIGHT HUNDRED AND THIRTY-ONE.

An Act to incorporate the American Institute of Instruction.

SECTION 1. *Be it enacted by the Senate and House of Representatives, in General Court assembled, and by the authority of the same,* That Francis Wayland, Jr., William B. Calhoun, William Sullivan, John Adams, John Park, Thomas H. Gallaudet, Andrew Yates, Roberts Vaux, William C. Fowler, Reuben Haines, Gideon F. Thayer, Solomon P. Miles, William C. Woodbridge, Ebenezer Bailey, Abraham Andrews, Otis Everett and James G. Carter, together with their associates, be, and they hereby are made and constituted a Corporation in the city of Boston, by the name of the American Institute of Instruction, with all the powers, rights, duties and liabilities usually incident to Corporations, for the purpose of promoting and improving the means of education and instruction in Morality, Science and Literature.

SECTION 2. *Be it further enacted,* That the said Corporation may appoint such officers, and make such by-laws, rules and regulations, as it may see fit; provided the same be consistent with the Constitution and Laws of this Commonwealth.

SECTION 3. *Be it further enacted,* That said Corporation may hold real estate to the value of ten thousand dollars, and personal estate to the value of twenty thousand dollars, in its

corporate name ; and use and improve the same for the benefit of this Institution, and for all lawful purposes incident to the powers hereby granted.

SECTION 4. *Be it further enacted*, That any persons named in this Act may call the first meeting of the members of this Corporation by public advertisement in any newspaper printed in Boston, two weeks successively before the day of meeting.

SECTION 5. *Be it further enacted*, That this Act shall be subject to be altered, or amended, or repealed at any time, at the will of the Legislature.

In House of Representatives, March 3, 1831.

Passed to be enacted.

WM. B. CALHOUN, Speaker.

In Senate, March 4, 1831.

Passed to be enacted.

SAMUEL LATHROP, President.

March 4, 1831.—Approved.

LEVI LINCOLN.

CONSTITUTION
OF THE
AMERICAN INSTITUTE OF INSTRUCTION.

P R E A M B L E .

WE, whose names are hereunto subjoined, pledging our zealous efforts to promote the cause of popular education, agree to adopt the following Constitution, and to obey the By-Laws made in conformity thereto.

ARTICLE I.....NAME AND OBJECT.

The Society shall be known by the title of the AMERICAN INSTITUTE OF INSTRUCTION. Its object shall be the diffusion of useful knowledge in regard to education.

ARTICLE II.....MEMBERS.

1. Any gentleman of good moral character, interested in the subject of Education, may become a member of this Institute, by signing this Constitution, and paying, at the time of his admission, a fee of one dollar.*

2. An annual assessment of one dollar, shall be laid upon each member, by neglecting to pay which, for more than one

* Members of the Institute may receive their certificates of membership by sending to the Treasurer the annual assessment. Gentlemen residing at a distance, who wish to join the Institute, may do so, by sending to the Treasurer one dollar, and authorizing him to sign their names to the Constitution.

year after due notice from the Treasurer, he shall cease to be a member of the society.

3. Any gentleman, by paying at one time the sum of twenty dollars, shall become a member of the Institute for life, and be exempted from all future assessments.

4. Honorary members may be elected by the Institute, at the recommendation of two thirds of the Directors present at any stated meeting of that Board.

5. For dishonorable or immoral conduct, a member may be dismissed from the society, by a vote of two thirds of the members present, at any regular meeting.

6. Ladies, engaged in the business of instruction, shall be invited to hear the annual address, lectures, and reports of committees on subjects of Education.

ARTICLE III.....MEETINGS.

1. The annual meeting of the Institute shall be held at Boston, on the Thursday next preceding the last Wednesday in August, at such place and hour as the Board of Directors shall order.

2. Special meetings may be called by the Directors.

3. Due notice of the meetings of the society shall be given in the public journals.

ARTICLE IV.....OFFICERS.

1. The officers of the society shall be a President, Vice Presidents, a Recording Secretary, two Corresponding Secretaries, a Treasurer, three Curators, three Censors, and twelve Counsellors, who shall constitute a Board of Directors.

2. The officers shall be elected annually, in August, by ballot.

ARTICLE V.....DUTIES OF OFFICERS.

1. The President, or, in his absence, one of the Vice Presidents, or, in their absence, a President *pro tempore*, shall preside at the meetings of the Institute.

2. The Recording Secretary shall notify all meetings of the society, and of the Board of Directors; and he shall keep a record of their transactions.

3. The Corresponding Secretaries, subject to the order of the Board of Directors, shall be the organs of communication with other societies, and with individuals.

4. The Treasurer shall collect and receive all moneys of the Institute, and shall render an accurate statement of all his receipts and payments, annually, and whenever called upon by the Board of Directors; to whom he shall give such bonds for the faithful performance of his duty, as they shall require. He shall make no payment except by their order.

5. To the Board of Directors shall be entrusted the general interests of the society, with authority to devise and carry into execution such measures as may promote its objects. It shall be their duty to appoint some suitable person to deliver an address before the Institute, at their annual meeting; to select competent persons to serve on Standing Committees, or to deliver lectures, on such subjects relating to education as they may deem expedient and useful; to collect such facts, as may promote the general objects of the society; and to provide convenient accommodations for the meetings. They shall, at the annual meeting, exhibit their records, and report to the Institute. They shall have power to fill all vacancies in their Board, from members of the society, and make By-Laws for its government.

6. It shall be the particular duty of the Curators to select books, and to take charge of the library of the Institute.

7. The Censors shall have authority to procure for publication the annual address and lectures. It shall be their duty to examine the annual reports of the Standing Committees, and all other communications made to the society; and to publish such of them, as, in their estimation, may tend to throw light on the subject of education, and aid the faithful instructor in the discharge of his duty.

8. It shall be the duty of the President, the Vice Presidents, and Counsellors, severally, to recommend to the consideration of the Board of Directors such subjects of inquiry, as, in their opinion, may best advance the great objects of the Institute.

9. Stated meetings of the Board of Directors shall be held at Boston on the first Wednesday in January; on the last Wednesday in May; and on the day next preceding that of the annual meeting of the Institute in August.

ARTICLE VI.....BY-LAWS AND AMENDMENTS.

1. By-Laws, not repugnant to this Constitution, may be adopted at any regular meeting.

2. This Constitution may be altered or amended, by a vote of two thirds of the members present at the annual meeting, provided two thirds of the Directors, present at a stated meeting, shall agree to recommend the proposed alteration or amendment.

BY - L A W S .

I. At all meetings of the Board of Directors, seven members shall be necessary to constitute a quorum to do business.

II. The Board of Directors shall annually choose a Committee of Finance, whose duty it shall be to audit the accounts of the Treasurer, and, under the control of the Board of Directors, to draw orders on the Treasurer for the payment of charges against the Institute.

III. It shall be the duty of the Recording Secretary, on application of any two Directors, to call special meetings of the Board.

OFFICERS
OF THE
AMERICAN INSTITUTE OF INSTRUCTION.

PRESIDENT.

FRANCIS WAYLAND, President of Brown University, Providence, Rhode Island.

VICE PRESIDENTS.

WILLIAM B. CALHOUN, Springfield, Massachusetts.

WILLIAM SULLIVAN, Boston, Massachusetts.

JOHN ADAMS, Andover, Massachusetts.

JOHN PARK, Worcester, Massachusetts.

THOMAS H. GALLAUDET, Hartford, Connecticut.

ANDREW YATES, Chittenango, New York.

ROBERTS VAUX, Philadelphia, Pennsylvania.

WILLIAM C. FOWLER, Middlebury, Vermont.

REUBEN HAINES, * Germantown, Pennsylvania.

BENJAMIN B. WISNER, Boston, Massachusetts.

THOMAS S. GRIMKE, Charleston, South Carolina.

JOHN GRISCOM, New York city, New York.

TIMOTHY FLINT, Cincinnati, Ohio.

PHILIP LINDSLEY, President of the University of Tennessee,
Nashville, Tennessee.

ALVA WOODS, President of the University of Alabama, Tuscaloosa, Alabama.

BENJAMIN ABBOT, Exeter, New Hampshire.

WILLIAM WIRT, Baltimore, Maryland.

OFFICERS OF THE INSTITUTE.

RECORDING SECRETARY.

GIDEON F. THAYER, Boston, Massachusetts.

CORRESPONDING SECRETARIES.

SOLOMON P. MILES, Boston, Massachusetts.

WILLIAM C. WOODBRIDGE, Hartford, Connecticut.

TREASURER.

BENJAMIN D. EMERSON, Boston, Massachusetts.

CURATORS.

ABRAHAM ANDREWS, Boston, Massachusetts.

FREDERICK EMERSON, Boston, Massachusetts.

CORNELIUS WALKER, Boston, Massachusetts.

CENSORS.

EBENEZER BAILEY, Boston, Massachusetts.

JACOB ABBOTT, Boston, Massachusetts.

CORNELIUS C. FELTON, Cambridge, Massachusetts.

COUNSELLORS.

WILLIAM J. ADAMS, New-York city, New-York.

JAMES G. CARTER, Lancaster, Massachusetts.

WILLIAM RUSSELL, Germantown, Pennsylvania.

JOSEPH EMERSON, Weathersfield, Connecticut.

WILLIAM FORREST, New-York city, New-York.

WALTER R. JOHNSON, Philadelphia, Pennsylvania.

JOHN KINGSBURY, Providence, Rhode Island.

SAMUEL P. NEWMAN, Professor in Bowdoin College, Brunswick, Maine.

HENRY K. OLIVER, Salem, Massachusetts.

ASA RAND, Boston, Massachusetts.

OLIVER A. SHAW, Richmond, Virginia

ELIPHA WHITE, John's Island, South Carolina.

THIRD ANNUAL MEETING.

THE third annual meeting of the INSTITUTE will be held in Boston, on Thursday, the 20th day of August next. It is hoped that the members will not only be present themselves, as heretofore, but that they will also make others, who are interested in the subject of education, acquainted with the objects of the Institute, and thus induce them to come forward and assist its efforts, with their influence and active exertions.

The committee appointed for the purpose, have not fully completed the arrangements for the next anniversary; they have made such progress, however, as leads them to believe that the exercises will be highly interesting and instructive.

The *Introductory Address* will be delivered by President QUINCY, of Harvard University.

LECTURES.

Lectures on the following subjects, will be given by the gentlemen whose names are annexed.

1. Duties of School Committees.

WILLIAM B. CALHOUN, Springfield.

2. Moral Influence of the Physical Sciences.

JOHN PIERPONT, Boston.

3. The mode of teaching Natural Philosophy.

Prof. HALE, of Dartmouth College.

4. Physical Education.

Dr. GEORGE HAYWARD, Boston.

5. The best mode of teaching the Learned Languages.

BENJAMIN A. GOULD, Boston.

6. Modern Languages.

Prof. TICKNOR, of Harvard University.

7. The best mode of teaching History.
Prof. FISKE, of Amherst College.
8. Geography.
WILLIAM C. WOODERIDGE, Hartford, Ct.
9. Rewards and Punishments in Schools.
JOHN A. VAUGHAN, Hallowell, Maine.
10. Emulation.
JOHN KINGSBURY, Providence, R. I.
11. Defects of Common Schools.
R. I. HOWARD, Newburyport.
12. The proper mode of conducting Recitations, and the utility of Questions in text-books.
WILLIAM H. SPEAR, Roxbury.
13. Discipline of Schools for Females.
JAMES FURBUSH, Portland, Me.
14. Elocution.
JOHN BARBER, Westchester, Pa.
15. Mode of Teaching Arithmetic.
FREDERIC EMERSON, Boston.
16. Classification of Schools.
S. M. BURNSIDE, Worcester, Mass.

It is probable that Lectures on some, if not on most of the following subjects, will be delivered ; but the lecturers are not yet engaged :—

1. The Philosophy of Language.
2. Geology and Mineralogy, as branches of popular education.
3. Utility and proper use of Visible Illustrations.
4. Analysis of the Powers of the Mind to be developed in the process of Education.
5. The teaching of Grammar and Composition.
6. The influence of youthful Sports and Games upon the Formation of Character.
7. Legislative aid to the cause of Education.
8. Discipline of Schools for boys.
9. The peculiar Rights and Duties of American citizens,—and the best method of teaching them.

DISCUSSIONS.

The Committee having been directed to propose questions, to be freely discussed during the next meeting of the Institute, they beg leave to offer the following. Other questions will probably be introduced by the members at the time.

1. Is it expedient to establish modes of amusement, during the periods which may be allowed for relaxation, in school hours?

2. Is a republican mode of government for schools, practicable and expedient?

3. Should children be required to commit to memory what they do not understand?

4. Is it best to attend first to a brief outline of a study, and then gradually to fill up that outline?

5. Is it profitable that a scholar should be engaged in several studies at the same time?

6. Should the principle of emulation be resorted to, in education?

7. Could the time, which is employed in the study of the ancient and foreign languages, be more profitably devoted to the English classics, and the sciences?

DISSERTATIONS.

It is hoped the members of the Institute will be mindful of the votes,* passed at the last meeting, requesting them to communicate the results of their experience for the general good. A

* INSTITUTE, *Monday, August 29.*

On motion of MR. WOODBRIDGE.

Resolved, That it be considered the duty of every member of the Institute, as his circumstances permit, to communicate the results of his experience and observations on the subjects discussed or proposed by the Institute, to the Censors, to be by them published, or referred to appropriate committees, at their discretion.

BOARD OF DIRECTORS, *August 29.*

On motion of MR. BAILEY,

Voted, That the several members of the Institute be respectfully invited to communicate such facts relating to education, and such practical method of teaching in any particular department, as may not be generally known or practised: such communications to be directed to the Recording Secretary, before the first day of August, 1832, and by him to be submitted to the Directors.



vast amount of useful information might be thus collected. Dissertations on the following subjects are particularly requested :—

1. The best method of teaching children the meaning of words.

2. Modes of teaching the alphabet and a distinct articulation.

3. The measures to preserve the natural form, the strength and health of pupils, while engaged in their studies ; especially in relation to postures, while studying, and the changes which may take place in postures, and the space of time in which studying may be continued without intermission.

4. The means best adapted to make children *happy* in school ; and to lead them to regard the acquisition of knowledge as a pleasure, and not as a task.

PRIZE ESSAY.

By a vote of the Board of Directors, a prize of twenty dollars is offered for the best Essay *on the teaching of penmanship* ; with a view to ascertain some mode by which the loss of time, incurred by the common methods of teaching, may be obviated.

Competitors are requested to send their performances to GIDEON F. THAYER, the Secretary of the Committee of Arrangements, as early as the first of August next.

It will be remembered that all Ladies, engaged in the business of Instruction, are invited to attend the exercises of the Institute, free of expense.

E. BAILEY, *Chairman.*

Boston, Feb. 12, 1832.